```
=> d his

     (FILE 'HCAPLUS' ENTERED AT 14:43:33 ON 11 MAR 1999)
               DEL HIS Y

     FILE 'REGISTRY' ENTERED AT 14:50:23 ON 11 MAR 1999
               ACT JONES2/A
              ---------
L1   (         1)SEA FILE=REGISTRY ABB=ON  3376-24-7
L2   (         1)SEA FILE=REGISTRY ABB=ON  DMPO/CN
L3   (         1)SEA FILE=REGISTRY ABB=ON  POBN/CN
L4   (         1)SEA FILE=REGISTRY ABB=ON  TEMPO/CN
L5             4 SEA FILE=REGISTRY ABB=ON  L1 OR L2 OR L3 OR L4
               ---------
                ACT JONES3/A
               ---------
L6              STR
L7              SCR 2040
L8             0 SEA FILE=REGISTRY SSS FUL L6 AND L7
               ---------
                ACT JONES/A
               ---------
L9              STR
L10          839 SEA FILE=REGISTRY SSS FUL L9
               ---------
L11          838 S L10 NOT L5

     FILE 'HCAPLUS' ENTERED AT 14:50:41 ON 11 MAR 1999
L12         2861 S L5
L13          438 S L11
L14         3004 S SPIN (L) TRAP?
L15       341929 S OXIDN OR OXIDATIV?
L16         9879 S L15 (L) (STRESS OR DAMAG?)
L17           13 S L12 AND L14 AND L16
L18            1 S L13 AND L14 AND L16
L19          102 S L12 AND L14 AND L15
L20            2 S L19 AND (PHARMACEUT? OR THERAP?)
L21            0 S L19 AND (63/SX,SC)
L22           13 S L17 OR L18 OR L20
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=> fil reg
FILE 'REGISTRY' ENTERED AT 14:57:19 ON 11 MAR 1999
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DICTIONARY FILE UPDATES:  9 MAR  99  HIGHEST RN 220222-35-5

TSCA INFORMATION NOW CURRENT THROUGH JUNE 29, 1998

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

=> d his l1-l11

     (FILE 'HCAPLUS' ENTERED AT 14:43:33 ON 11 MAR 1999)
               DEL HIS Y

     FILE 'REGISTRY' ENTERED AT 14:50:23 ON 11 MAR 1999
               ACT JONES2/A
               ---------
L1   (         1)SEA FILE=REGISTRY ABB=ON  3376-24-7
L2   (         1)SEA FILE=REGISTRY ABB=ON  DMPO/CN
L3   (         1)SEA FILE=REGISTRY ABB=ON  POBN/CN
L4   (         1)SEA FILE=REGISTRY ABB=ON  TEMPO/CN
L5             4 SEA FILE=REGISTRY ABB=ON  L1 OR L2 OR L3 OR L4
               ---------
               ACT JONES3/A
               ---------
L6               STR
L7               SCR 2040
L8             0 SEA FILE=REGISTRY SSS FUL L6 AND L7
               ---------
               ACT JONES/A
               ---------
L9               STR
L10          839 SEA FILE=REGISTRY SSS FUL L9
               ---------
L11          838 S L10 NOT L5

=> d que  l5
L1   (         1)SEA FILE=REGISTRY ABB=ON  3376-24-7
L2   (         1)SEA FILE=REGISTRY ABB=ON  DMPO/CN
L3   (         1)SEA FILE=REGISTRY ABB=ON  POBN/CN
L4   (         1)SEA FILE=REGISTRY ABB=ON  TEMPO/CN
L5             4 SEA FILE=REGISTRY ABB=ON  L1 OR L2 OR L3 OR L4

=> d l5 rn cn 1-4

L5   ANSWER 1 OF 4  REGISTRY  COPYRIGHT 1999 ACS
RN   66893-81-0  REGISTRY
CN   2-Propanamine, 2-methyl-N-[(1-oxido-4-pyridinyl)methylene]-, N-oxide
(9CI)
     (CA INDEX NAME)
OTHER CA INDEX NAMES:
```

CN 2-Propanamine, 2-methyl-N-(4-pyridinylmethylene)-, N,N'-dioxide
OTHER NAMES:
CN .alpha.-(4-Pyridyl-1-oxide)-N-tert-butylnitrone
CN 4-POBN
CN N-tert-Butyl-.alpha.-(4-pyridyl-1-oxide) nitrone
CN **POBN**

L5 ANSWER 2 OF 4 REGISTRY COPYRIGHT 1999 ACS
RN **3376-24-7** REGISTRY
CN 2-Propanamine, 2-methyl-N-(phenylmethylene)-, N-oxide (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Nitrone, N-tert-butyl-.alpha.-phenyl- (6CI, 7CI, 8CI)
OTHER NAMES:
CN .alpha.-Phenyl-N-tert-butylnitrone
CN 2-Phenyl-N-tert-butylnitrone
CN Benzylidene-tert-butylamine N-oxide
CN C-Phenyl-N-tert-butylnitrone
CN N-Benzylidene-tert-butylamine N-oxide
CN N-Benzylidene-tert-butylamine oxide
CN N-tert-Butyl-.alpha.-phenylnitrone
CN N-tert-Butyl-2-phenylnitrone
CN N-tert-Butyl-C-phenylnitrone
CN PBN

L5 ANSWER 3 OF 4 REGISTRY COPYRIGHT 1999 ACS
RN 3317-61-1 REGISTRY
CN 2H-Pyrrole, 3,4-dihydro-2,2-dimethyl-, 1-oxide (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 1-Pyrroline, 5,5-dimethyl-, 1-oxide (6CI, 7CI, 8CI)
OTHER NAMES:
CN 2,2-Dimethyl-3,4-dihydro-2H-pyrrole N-oxide
CN 5,5-Dimethyl-.DELTA.1-pyrroline 1-oxide
CN 5,5-Dimethyl-.DELTA.1-pyrroline N-oxide
CN 5,5-Dimethyl-1-pyrroline 1-oxide
CN 5,5-Dimethyl-1-pyrroline N-oxide
CN **DMPO**

L5 ANSWER 4 OF 4 REGISTRY COPYRIGHT 1999 ACS
RN 2564-83-2 REGISTRY
CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Piperidinooxy, 2,2,6,6-tetramethyl- (7CI, 8CI)
OTHER NAMES:
CN 1,1,5,5-Tetramethylpentamethylene nitroxide
CN 1-Oxyl-2,2,6,6-tetramethylpiperidine
CN 2,2',6,6'-Tetramethylpiperidinooxy radical
CN 2,2,6,6-Tetramethyl-1-oxylpiperidine
CN 2,2,6,6-Tetramethyl-1-piperadoxyl
CN 2,2,6,6-Tetramethyl-1-piperidinoxyl
CN 2,2,6,6-Tetramethyl-1-piperidinyloxy
CN 2,2,6,6-Tetramethyl-1-piperidyloxy
CN 2,2,6,6-Tetramethylpiperidin-1-oxy
CN 2,2,6,6-Tetramethylpiperidin-1-oxyl radical
CN 2,2,6,6-Tetramethylpiperidin-N-oxyl
CN 2,2,6,6-Tetramethylpiperidine N-oxide radical
CN 2,2,6,6-Tetramethylpiperidine N-oxy

```
CN   2,2,6,6-Tetramethylpiperidine N-oxyl
CN   2,2,6,6-Tetramethylpiperidine N-oxyl radical
CN   2,2,6,6-Tetramethylpiperidine nitroxide
CN   2,2,6,6-Tetramethylpiperidine nitroxide radical
CN   2,2,6,6-Tetramethylpiperidine-1-oxyl
CN   2,2,6,6-Tetramethylpiperidino-1-oxy
CN   2,2,6,6-Tetramethylpiperidinooxy
CN   2,2,6,6-Tetramethylpiperidinooxy radical
CN   2,2,6,6-Tetramethylpiperidinooxyl
CN   2,2,6,6-Tetramethylpiperidinoxyl radical
CN   2,2,6,6-Tetramethylpiperidinyl 1-oxide
CN   2,2,6,6-Tetramethylpiperidinyl-1-oxyl
CN   2,2,6,6-Tetramethylpiperidinyl-N-oxy
CN   2,2,6,6-Tetramethylpiperidinyloxy
CN   2,2,6,6-Tetramethylpiperidoxyl
CN   HO 6
CN   Tanan
CN   Tanane
CN   Tempo

=> d queu stat l8
L8 HAS NO ANSWERS
'QUEU STAT ' IS NOT A VALID STRUCTURE FORMAT KEYWORD
ENTER STRUCTURE FORMAT (SIA), SCT, SDA, SIM, SAT, NOS:end

=> d que stat l8
L6              STR
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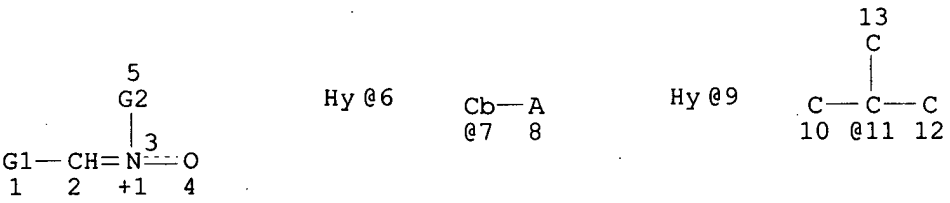


```
VAR G1=7/PH/6/9
VAR G2=7/11
NODE ATTRIBUTES:
CHARGE  IS E+1    AT   3
DEFAULT MLEVEL IS ATOM
GGCAT   IS MCY  AT   6
GGCAT   IS MCY  AT   9
DEFAULT ECLEVEL IS LIMITED
ECOUNT  IS E2 N  AT   6
ECOUNT  IS E1 N  E1 S  AT   9

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  13

STEREO ATTRIBUTES: NONE
L7              SCR 2040
L8            0 SEA FILE=REGISTRY SSS FUL L6 AND L7

100.0% PROCESSED  22658 ITERATIONS                    0 ANSWERS
SEARCH TIME: 00.00.03
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=> d que stat l10
L9                STR
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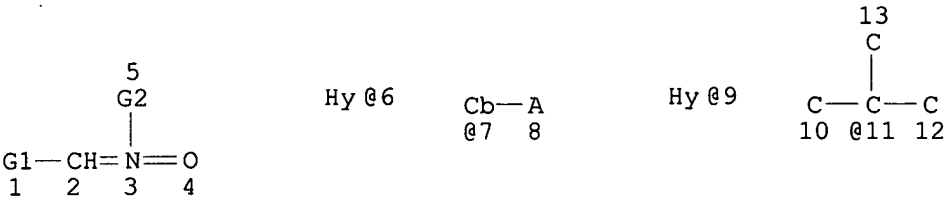


```
VAR G1=7/PH/6/9
VAR G2=7/11
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
GGCAT   IS MCY  AT   6
GGCAT   IS MCY  AT   9
DEFAULT ECLEVEL IS LIMITED
ECOUNT  IS E2 N  AT   6
ECOUNT  IS E1 N  E1 S  AT   9

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  13

STEREO ATTRIBUTES: NONE
L10          839 SEA FILE=REGISTRY SSS FUL L9

100.0% PROCESSED  93816 ITERATIONS                          839 ANSWERS
SEARCH TIME: 00.00.11


=> d his l11

     (FILE 'REGISTRY' ENTERED AT 14:50:23 ON 11 MAR 1999)
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L11          838 S L10 NOT L5

=> fil hcaplus
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FILE COVERS 1967 - 11 Mar 1999  VOL 130 ISS 11
FILE LAST UPDATED: 11 Mar 1999  (19990311/ED)

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.
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 This file supports REGlstRY for direct browsing and searching of
 all substance data from the REGISTRY file.  Enter HELP FIRST for
 more information.
'OBI' IS DEFAULT SEARCH FIELD FOR 'HCAPLUS' FILE

=> d hsi l12-
'HSI' IS NOT A VALID FORMAT FOR FILE 'HCAPLUS'
'L12-' IS NOT A VALID FORMAT FOR FILE 'HCAPLUS'
ENTER DISPLAY FORMAT (BIB):end

=> d his l12-

     (FILE 'HCAPLUS' ENTERED AT 14:50:41 ON 11 MAR 1999)
L12         2861 S L5
L13          438 S L11
L14         3004 S SPIN (L) TRAP?
L15       341929 S OXIDN OR OXIDATIV?
L16         9879 S L15 (L) (STRESS OR DAMAG?)
L17           13 S L12 AND L14 AND L16
L18            1 S L13 AND L14 AND L16
L19          102 S L12 AND L14 AND L15
L20            2 S L19 AND (PHARMACEUT? OR THERAP?)
L21            0 S L19 AND (63/SX,SC)
L22           13 S L17 OR L18 OR L20

     FILE 'REGISTRY' ENTERED AT 14:57:19 ON 11 MAR 1999

     FILE 'HCAPLUS' ENTERED AT 14:58:10 ON 11 MAR 1999

=> d .ca hitstr l22 1-13

L22  ANSWER 1 OF 13  HCAPLUS  COPYRIGHT 1999 ACS
AN   1999:1586  HCAPLUS
DN   130:136155
TI   Photoreduction of the fluorescent dye 2'-7'-dichlorofluorescein: a
     spin trapping and direct electron spin
     resonance study with implications for oxidative stress
     measurements
AU   Marchesi, Emanuela; Rota, Cristina; Fann, Yang C.; Chignell, Colin F.;
     Mason, Ronald P.
CS   Dipartimento di Chimica Organica "A. Mangini," Universita di Bologna,
     Italy
SO   Free Radical Biol. Med. (1998), Volume Date 1999, 26(1/2), 148-161
     CODEN: FRBMEH; ISSN: 0891-5849
PB   Elsevier Science Inc.
DT   Journal
LA   English
AB   The photoredn. of 2'-7'-dichlorofluorescein (DCF) was investigated in
     buffer soln. using direct ESR and the ESR spin-trapping technique.
     Anaerobic studies of the reaction of DCF in the presence of reducing
     agents demonstrated that during visible irradn. (.lambda. > 300 nm)
     2'-7'-dichlorofluorescein undergoes one-electron redn. to produce a
     semiquinone-type free radical as demonstrated by direct ESR.
     Spin-trapping studies of incubations contg. DCF, 5,5-dimethyl-1-pyrroline
     N-oxide (DMPO) and either reduced glutathione (GSH) or reduced NADH
     demonstrate, under irradn. with visible light, the prodn. of the
```

superoxide dismutase-sensitive DMPO/OOH adduct. In the absence of DMPO, measurements with a Clark-type oxygen electrode show that mol. oxygen is consumed in a light-dependent process. The semiquinone radical of DCF, when formed in an aerobic system, is immediately oxidized by oxygen, which regenerates the dye and forms superoxide.

IT **3317-61-1**, 5,5-Dimethyl-1-pyrroline N-oxide
RL: RCT (Reactant)
(photoredn. of the fluorescent dye 2'-7'-dichlorofluorescein and a **spin trapping** and direct ESR study with implications for **oxidative stress** measurements)

CC 9-5 (Biochemical Methods)

ST fluorescent dye dichlorofluorescein photoredn; **spin trapping** ESR **oxidative stress**

IT ESR (electron **spin** resonance)
Oxidative stress (biological)
Spin trapping
(photoredn. of the fluorescent dye 2'-7'-dichlorofluorescein and a **spin trapping** and direct ESR study with implications for **oxidative stress** measurements)

IT 7782-44-7, Oxygen, biological studies 9054-89-1, Superoxide dismutase 11062-77-4, Superoxide.
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(photoredn. of the fluorescent dye 2'-7'-dichlorofluorescein and a **spin trapping** and direct ESR study with implications for **oxidative stress** measurements)

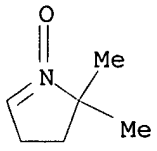
IT 70-18-8, Reduced glutathione, reactions 76-54-0, 2'-7'-Dichlorofluorescein: **3317-61-1**, 5,5-Dimethyl-1-pyrroline N-oxide
RL: RCT (Reactant)
(photoredn. of the fluorescent dye 2'-7'-dichlorofluorescein and a **spin trapping** and direct ESR study with implications for **oxidative stress** measurements)

IT 58-68-4, NADH
RL: RCT (Reactant)
(reduced; photoredn. of the fluorescent dye 2'-7'-dichlorofluorescein and a **spin trapping** and direct ESR study with implications for **oxidative stress** measurements)

IT **3317-61-1**, 5,5-Dimethyl-1-pyrroline N-oxide
RL: RCT (Reactant)
(photoredn. of the fluorescent dye 2'-7'-dichlorofluorescein and a **spin trapping** and direct ESR study with implications for **oxidative stress** measurements)

RN 3317-61-1 HCAPLUS

CN 2H-Pyrrole, 3,4-dihydro-2,2-dimethyl-, 1-oxide (9CI) (CA INDEX NAME)



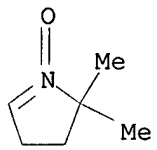
L22 ANSWER 2 OF 13 HCAPLUS COPYRIGHT 1999 ACS

AN 1998:690308 HCAPLUS

DN 130:63200

TI Generation of free radicals from dihydropyrazines with DNA strand-breakage activity
AU Yamaguchi, Tadatoshi; Matsumoto, Shigenobu; Watanabe, Kenji
CS Dep. of Hygiene, Miyazaki Medical College, Kiyazaki, 889-1601, Japan
SO Tetrahedron Lett. (1998), 39(45), 8311-8312
CODEN: TELEAY; ISSN: 0040-4039
PB Elsevier Science Ltd.
DT Journal
LA English
AB ESR spin-trapping techniques revealed that free radical species were generated in a buffer soln. (pH 7.1) of compds. (1 - 5) having a dihydropyrazine skeleton. Oxygen radicals and several cation-centered radicals were detected as adducts of spin traps: DMPO and DBNBS. Secondary and tertiary radicals trapped were assigned to the carbon-centered radical structures.
IT **3317-61-1**, 5,5-Dimethyl-1-pyrroline N-oxide
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(detection of generation of oxygen radicals and carbon-centered radicals in aq. soln. of dihydropyrazine using ESR **spin-trapping**)
CC 9-5 (Biochemical Methods)
ST ESP **spin trapping** detection radicals; DNA breakage dihydropyrazines free radicals generation
IT DNA
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(breakage; detection of generation of oxygen radicals and carbon-centered radicals in aq. soln. of dihydropyrazine using ESR **spin-trapping**)
IT ESR (electron **spin** resonance)
ESR spectroscopy
Oxidative stress (biological)
(detection of generation of oxygen radicals and carbon-centered radicals in aq. soln. of dihydropyrazine using ESR **spin-trapping**)
IT Reactive oxygen species
RL: ANT (Analyte); ANST (Analytical study)
(detection of generation of oxygen radicals and carbon-centered radicals in aq. soln. of dihydropyrazine using ESR **spin-trapping**)
IT Radicals, analysis
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(detection of generation of oxygen radicals and carbon-centered radicals in aq. soln. of dihydropyrazine using ESR **spin-trapping**)
IT **3317-61-1**, 5,5-Dimethyl-1-pyrroline N-oxide 78824-09-6, DBNBS
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(detection of generation of oxygen radicals and carbon-centered radicals in aq. soln. of dihydropyrazine using ESR **spin-trapping**)
IT 7782-44-7D, Oxygen, radicals
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(detection of generation of oxygen radicals and carbon-centered radicals in aq. soln. of dihydropyrazine using ESR **spin-trapping**)
IT **3317-61-1**, 5,5-Dimethyl-1-pyrroline N-oxide

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(detection of generation of oxygen radicals and carbon-centered radicals in aq. soln. of dihydropyrazine using ESR **spin-trapping**)
RN 3317-61-1 HCAPLUS
CN 2H-Pyrrole, 3,4-dihydro-2,2-dimethyl-, 1-oxide (9CI) (CA INDEX NAME)



L22 ANSWER 3 OF 13 HCAPLUS COPYRIGHT 1999 ACS
AN 1998:635069 HCAPLUS
DN 130:21490
TI Ozone exposure generates free radicals in the blood samples In Vitro. Detection by the ESR **spin-trapping** technique
AU Ueno, Ikuko; Hoshino, Mikio; Miura, Toshiaki; Shinriki, Nariko
CS The Institute of Physical and Chemical Research, Wako, Japan
SO Free Radical Res. (1998), 29(2), 127-135
CODEN: FRARER; ISSN: 1071-5762
PB Harwood Academic Publishers
DT Journal
LA English
AB Generation of free radicals in the reaction of ozone with blood samples and related salt solns. was investigated in vitro by using ESR spin-trapping technique with DMPO. In the reactions of low levels of ozone, a carbon-centered radical was spin-trapped with DMPO, giving rise to the 6-line ESR signal in both whole blood and blood plasma. In the blood plasma, DMPO-spin adduct of hydroxyl radical (DMPO-OH) was detected together with the spin adduct of carbon-centered radical. The present spin-trapping study demonstrates that, when exposed to ozone, 0.9% NaCl soln. in the presence of DMPO gives rise to the formation of DMPO-OH. The addn. effects of ethanol, which is a .cntdot.OH scavenger, into the NaCl soln. reveal that DMPO-OH is produced by the reaction of DMPO with both .cntdot.OH and unidentified oxidants originated from the reaction of Cl- and ozone. Based on these observations, we consider that .cntdot.OH is generated similarly in the blood plasma exposed to ozone. The ESR study of DMPO-spin adducts in the ozone-exposed aq. soln. of NaOCl indicates that Cl- reacts with ozone to give ClO-. Presumably, further oxidn. of ClO- by ozone leads to the formations of .cntdot.OH and the unidentified oxidants.
IT **3317-61-1**, DMPO
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study);
USES (Uses)
(ozone exposure generates free radicals in the blood samples in vitro and detection by the ESR **spin-trapping** technique)
CC 4-3 (Toxicology)
Section cross-reference(s): 59
IT Air pollution
Blood

Blood analysis
ESR (electron **spin** resonance)
Oxidative stress (biological)
Oxidizing agents
Ozone pollution
Plasma (blood)
Toxicity
(ozone exposure generates free radicals in the blood samples in vitro and detection by the ESR **spin-trapping** technique)

IT Radicals, biological studies
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(ozone exposure generates free radicals in the blood samples in vitro and detection by the ESR **spin-trapping** technique)

IT 3352-57-6, Hydroxyl radical, biological studies
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(ozone exposure generates free radicals in the blood samples in vitro and detection by the ESR **spin-trapping** technique)

IT 10028-15-6, Ozone, biological studies
RL: ADV (Adverse effect, including toxicity); POL (Pollutant); BIOL (Biological study); OCCU (Occurrence)
(ozone exposure generates free radicals in the blood samples in vitro and detection by the ESR **spin-trapping** technique)

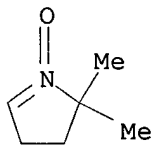
IT **3317-61-1**, DMPO
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study);
USES (Uses)
(ozone exposure generates free radicals in the blood samples in vitro and detection by the ESR **spin-trapping** technique)

IT 64-17-5, Ethanol, biological studies
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BIOL (Biological study); PROC (Process)
(ozone exposure generates free radicals in the blood samples in vitro and detection by the ESR **spin-trapping** technique)

IT 7681-52-9 16887-00-6, Chloride, reactions
RL: RCT (Reactant)
(ozone exposure generates free radicals in the blood samples in vitro and detection by the ESR **spin-trapping** technique)

IT **3317-61-1**, DMPO
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study);
USES (Uses)
(ozone exposure generates free radicals in the blood samples in vitro and detection by the ESR **spin-trapping** technique)

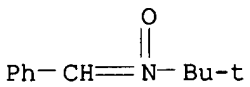
RN 3317-61-1 HCAPLUS
CN 2H-Pyrrole, 3,4-dihydro-2,2-dimethyl-, 1-oxide (9CI) (CA INDEX NAME)



L22 ANSWER 4 OF 13 HCAPLUS COPYRIGHT 1999 ACS

AN 1998:296634 HCAPLUS
DN 129:49611
TI A **spin trap**, N-tert-butyl-.alpha.-phenylnitrone extends the life span of mice
AU Saito, Kieko; Yoshioka, Hisashi; Cutler, Richard G.
CS Gerontology Research Center, National Institute on Aging, NIH, Baltimore, MD, 21224, USA
SO Biosci., Biotechnol., Biochem. (1998), 62(4), 792-794
CODEN: BBBIEJ; ISSN: 0916-8451
PB Japan Society for Bioscience, Biotechnology, and Agrochemistry
DT Journal
LA English
AB To characterize the pharmacol. effects of N-tert-butyl-.alpha.-phenylnitrone (PBN) on life span, we administered PBN in drinking water to 24.5-mo-old mice, and the survivors were counted. Their water consumption and body wts. were measured as biol. markers. PBN-treated animals as compared with control animals had prolonged mean and max. life spans. Their water consumption decreased but no significant change was found in their body wts., indicating that the metab. was improved. Results showed that PBN indeed affects physiol. functions and extends life span. We propose that nitric oxide release from PBN may be involved in altering the aging process.
IT **3376-24-7**, N-tert-Butyl-.alpha.-phenylnitrone
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**spin trap**, N-tert-butyl-.alpha.-phenylnitrone, extends life span of mice)
CC 1-12 (Pharmacology)
Section cross-reference(s): 13
IT Aging (animal)
Antioxidants (**pharmaceutical**)
Longevity
Oxidative stress (biological)
(**spin trap**, N-tert-butyl-.alpha.-phenylnitrone, extends life span of mice)
IT Reactive oxygen species
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(**spin trap**, N-tert-butyl-.alpha.-phenylnitrone, extends life span of mice)
IT 10102-43-9, Nitric oxide, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(donor; **spin trap**, N-tert-butyl-.alpha.-phenylnitrone, extends life span of mice)
IT **3376-24-7**, N-tert-Butyl-.alpha.-phenylnitrone
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**spin trap**, N-tert-butyl-.alpha.-phenylnitrone, extends life span of mice)
IT **3376-24-7**, N-tert-Butyl-.alpha.-phenylnitrone
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**spin trap**, N-tert-butyl-.alpha.-phenylnitrone, extends life span of mice)
RN 3376-24-7 HCAPLUS

CN 2-Propanamine, 2-methyl-N-(phenylmethylene)-, N-oxide (9CI) (CA INDEX NAME)



L22 ANSWER 5 OF 13 HCAPLUS COPYRIGHT 1999 ACS
AN 1998:174543 HCAPLUS
DN 128:317218
TI Generation of nitric oxide from **spin-trapping** agents under oxidative conditions
AU Saito, Kieko; Ariga, Toyohiko; Yoshioka, Hisashi
CS Graduate School of Nutritional and Environmental Sciences, University of Shizuoka, Shizuoka, 422, Japan
SO Biosci., Biotechnol., Biochem. (1998), 62(2), 275-279
CODEN: BBBIEJ; ISSN: 0916-8451
PB Japan Society for Bioscience, Biotechnology, and Agrochemistry
DT Journal
LA English
AB Nitric oxide (NO) generation from the spin-trapping agents, phenyl-tert-butylnitrone (PBN), .alpha.-(4-pyridyl-1-oxide)-N-tert-butylnitrone (POBN) and 5,5-dimethyl-1-pyrroline N-oxide (DMPO), under UV irradn. in the presence of dissolved oxygen and by oxidn. with the Fenton reagent was examd. by using ESR spin-trapping and spectrophotometric methods. A triplet signal at g=2.041 was obsd. after the ferrous complex of dithiocarbamate [Fe(MGD)2] had been added to a soln. of these trapping agents treated with UV irradn. and the Fenton reagent, showing that NO was trapped with Fe(MGD)2. The concn. of nitrite induced from NO was detd. via the Griess reaction to increase with the time of the treatment. It is speculated by ref. to the ESR signal obsd. at the position around g=2.006 that the C=N-double bond might have been cleaved by oxidn., resulting in the formation of a nitroso compd., and that NO was then generated by the fission of the C-N bond of the nitroso compd. NO generated in this way activated guanylate cyclase, from which it can be expected that a spin-trapping agent acts as an NO generator in vivo as well as a free radical scavenger.
IT **3317-61-1**, 5,5-Dimethyl-1-pyrroline N-oxide **3376-24-7** **66893-81-0**, .alpha.-(4-Pyridyl-1-oxide)-N-tert-butylnitrone
RL: BAC (Biological activity or effector, except adverse); BIOL (Biological study)
(**spin-trapping** agents as NO generators and radical scavengers)
CC 1-12 (Pharmacology)
ST **spin trapping** agent NO radical scavenger
IT **Spin trapping**
(agents; **spin-trapping** agents as NO generators and radical scaor management of CNS oxidative damage. The spin trap .alpha.-phenyl-tert-Bu nitrone (PBN) has recently been shown to protect against stroke-induce damage and reduce aging-assocd. neurol. deficits. A cyclic analog of PBN, MDL 101,002, was prepd. and tested in a no. of in

vitro and in vivo assays designed to assess its neuroprotective properties. MDL 101,002 was found to be an effective .bul.OH trap, to inhibit lipid peroxidn., and to decrease infarct size in a gerbil model of stroke. These results further indicate that oxidative damage arising from stroke contributes to infarct formation, and that spin traps are effective in ameliorating ischemia and reperfusion-induced CNS injury.

IT **3376-24-7**
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(antioxidant activity of radical trapping agents in model systems of CNS **oxidative damage**)

CC 1-11 (Pharmacology)

ST stroke **oxidative damage** antioxidant MDL 101002; nitrone **spin trap** antioxidant CNS stroke

IT Antioxidants
Oxidative stress, biological
(antioxidant activity of radical trapping agents in model systems of CNS **oxidative damage**)

IT Radicals, biological studies
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(antioxidant activity of radical trapping agents in model systems of CNS **oxidative damage**)

IT Peroxidation
(lipid; antioxidant activity of radical trapping agents in model systems of CNS **oxidative damage**)

IT Lipids, biological studies
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(peroxidn.; antioxidant activity of radical trapping agents in model systems of CNS **oxidative damage**)

IT Nervous system
(central, antioxidant activity of radical trapping agents in model systems of CNS **oxidative damage**)

IT Brain, disease
(infarction, antioxidant activity of radical trapping agents in model systems of CNS **oxidative damage**)

IT Brain, disease
(ischemia, antioxidant activity of radical trapping agents in model systems of CNS **oxidative damage**)

IT Perfusion
(re-, injury; antioxidant activity of radical trapping agents in model systems of CNS **oxidative damage**)

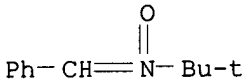
IT Brain, disease
(stroke, antioxidant activity of radical trapping agents in model systems of CNS **oxidative damage**)

IT 3352-57-6, Hydroxyl, biological studies
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(antioxidant activity of radical trapping agents in model systems of CNS **oxidative damage**)

IT **3376-24-7** 148671-62-9, MDL 101,002
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(antioxidant activity of radical trapping agents in model systems of CNS **oxidative damage**)

IT **3376-24-7**

RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(antioxidant activity of radical trapping agents in model systems of CNS **oxidative damage**)
RN 3376-24-7 HCAPLUS
CN 2-Propanamine, 2-methyl-N-(phenylmethylene)-, N-oxide (9CI) (CA INDEX NAME)



L22 ANSWER 7 OF 13 HCAPLUS COPYRIGHT 1999 ACS
AN 1996:101994 HCAPLUS
DN 124:219400
TI Characterization of the radical **trapping** activity of a novel series of cyclic nitrone **spin traps**
AU Thomas, Craig E.; Ohlweiler, David F.; Carr, Albert A.; Nieduzak, Thaddeus R.; Hay, David A.; Adams, Ginette; Vaz, Roy; BErnotas, Ronald C.
CS Hoechst Marion Roussel, Inc., Cincinnati, OH, 45215, USA
SO J. Biol. Chem. (1996), 271(6), 3097-104
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English
AB .alpha.-Phenyl-tert-Bu nitrone (PBN) is a nitrone spin trap, which has shown efficacy in animal models of oxidative stress, including stroke, aging, sepsis, and myocardial ischemia/reperfusion injury. We have prepd. a series of novel cyclic variants of PBN and evaluated them for radical trapping activity in vitro. Specifically, their ability to inhibit iron-induced lipid peroxidn. in liposomes was assessed, as well as superoxide anion (O2) and hydroxyl radical (.OH) trapping activity as detd. biochem. and using ESR (ESR) spectroscopy. All cyclic nitrones tested were much more potent as inhibitors of lipid peroxidn. than was PBN. The unsubstituted cyclic variant MDL 101,002 was approx. 8-fold more potent than PBN. An anal. of the analogs of MDL 101,002 revealed a direct correlation of activity with lipophilicity. However, lipophilicity does not solely account for the difference between MDL 101,002 and PBN, inasmuch as the calcd. octanol/water partition coeff. for MDL 101,002 is 1.01 as compared to 1.23 for PBN. This indicated the cyclic nitrones are inherently more effective radical traps than PBN in a membrane system. The most active compd. was a dichloro analog in the seven-membered ring series (MDL 104,342), which had an IC50 of 26 .mu.M, which was 550-fold better than that of PBN. The cyclic nitrones were shown to trap .OH with MDL 101,002 being 20-25 times more active than PBN as assessed using 2-deoxyribose and p-nitrosodimethylaniline as substrates, resp. Trapping of .OH by MDL 101,002 was also examd. by using ESR spectroscopy. When Fenton's reagent was used, the .OH adduct of MDL 101,002 yielded a six-line spectrum with hyperfine coupling consts. distinct from that of PBN. Importantly, the half-life of the adduct was nearly 5 min, while that of PBN is less than 1 min at physiol. pH. MDL 101,002 also trapped

the O2 radical to yield a six-line spectrum with coupling consts. very distinct from that of the .OH adduct. In mice, the cyclic nitrones ameliorated the damaging effects of oxidative stress induced by ferrous iron injection into brain tissue. Similar protection was not afforded by the lipid peroxidn. inhibitor U74006F, thus implicating radical trapping as a unique feature in the prevention of cell injury. Together, the in vivo activity, the stability of the nitroxide adducts, and the ability to distinguish between trapping of .OH and O2 suggest the cyclic nitrones to be ideal reagents for the study of oxidative cell injury.

IT **3376-24-7**
RL: BAC (Biological activity or effector, except adverse); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(radical **trapping** activity of cyclic nitrone **spin traps** and amelioration of brain injury from **oxidative stress**)

CC 1-3 (Pharmacology)

IT Lipids, biological studies
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(peroxidn.; radical **trapping** activity of cyclic nitrone **spin traps** and amelioration of brain injury from **oxidative stress**)

IT Lipophilicity
Molecular structure-biological activity relationship
Oxidative stress, biological
Peroxidation
(radical **trapping** activity of cyclic nitrone **spin traps** and amelioration of brain injury from **oxidative stress**)

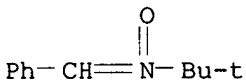
IT Nitrones
RL: BAC (Biological activity or effector, except adverse); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(radical **trapping** activity of cyclic nitrone **spin traps** and amelioration of brain injury from **oxidative stress**)

IT Radicals, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(radical **trapping** activity of cyclic nitrone **spin traps** and amelioration of brain injury from **oxidative stress**)

IT Brain, disease
(injury, radical **trapping** activity of cyclic nitrone **spin traps** and amelioration of brain injury from **oxidative stress**)

IT 24423-87-8P, MDL 105635 148671-62-9P, MDL 101002 148671-63-0P, MDL 100777 148671-64-1P, MDL 101111 148671-65-2P, MDL 102073 148671-66-3P, MDL 102832 148671-67-4P, MDL 102663 148671-68-5P, MDL 102336 148671-69-6P, MDL 102389 148671-70-9P, MDL 101872 148671-71-0P, MDL 100630 148671-72-1P, MDL 100426 148671-73-2P, MDL 101694 148671-74-3P, MDL 101354 148671-75-4P, MDL 101882 148671-76-5P, MDL 101842 148671-77-6P, MDL 100094 148671-78-7P, MDL 102839 158681-50-6P, MDL 104342 158846-44-7P, MDL 105185 174756-43-5P, MDL 104698 174756-46-8P, MDL 100818
RL: BAC (Biological activity or effector, except adverse); PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(radical **trapping** activity of cyclic nitrone **spin traps** and amelioration of brain injury from **oxidative**

stress)
IT **3376-24-7**
RL: BAC (Biological activity or effector, except adverse); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(radical **trapping** activity of cyclic nitrone **spin traps** and amelioration of brain injury from **oxidative stress**)
IT 3352-57-6, Hydroxyl radical, biological studies 11062-77-4, Superoxide anion
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(radical **trapping** activity of cyclic nitrone **spin traps** and amelioration of brain injury from **oxidative stress**)
IT **3376-24-7**
RL: BAC (Biological activity or effector, except adverse); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(radical **trapping** activity of cyclic nitrone **spin traps** and amelioration of brain injury from **oxidative stress**)
RN 3376-24-7 HCAPLUS
CN 2-Propanamine, 2-methyl-N-(phenylmethylene)-, N-oxide (9CI) (CA INDEX NAME)



L22 ANSWER 8 OF 13 HCAPLUS COPYRIGHT 1999 ACS
AN 1995:352368 HCAPLUS
DN 122:122987
TI In vivo or in vitro administration of the nitrone **spin-trapping** compound, n-tert-butyl-.alpha.-phenylnitrone, (PBN) reduces age-related deficits in striatal muscarinic receptor sensitivity
AU Joseph, J. A.; Cao, G.; Cutler, R. C.
CS USDA-ARS Human Nutrition Research Center on Aging, 711 Washington St., Boston, MA, 02111, USA
SO Brain Res. (1995), 671(1), 73-7
CODEN: BRREAP; ISSN: 0006-8993
DT Journal
LA English
AB Previous research has indicated that age-related redns. in muscarinic (m) (e.g. oxotremorine, Oxo) agonist enhancement of striatal K+-evoked dopamine release (K+-ERDA) and decreased IP3 release upon m receptor (mAChR) agonist stimulation are partially the result of deficits in signal transduction (ST). The present expts. were carried out to test the hypothesis that these age-related ST deficits occur as a result of free radical-induced alterations in membranes contg. receptor-G protein complexes. To test this hypothesis, the effects of in vivo and in vitro administration of the nitrone trapping agent, n-tert-butyl-.alpha.-phenylnitrone (PBN), on the Oxo-enhancement of K+-ERDA were examd. Results showed that: both in vivo (10 mg/kg/2.times.day PBN i.p./14 days) in vitro (incubation of striatal slices 0-100 .mu.M PBN/30 min) applications of PBN were effective in ameliorating age-related deficits in

Oxo-enhanced K+-ERDA. The results of the in vivo administration of PBN indicate that the loss of mAChR sensitivity in aging may be the result of oxidative stress that can be restored by this nitrone trapping agent. These findings show that redns. of endogenous or exogenous free radicals may alter one important biomarker of aging, i.e. the loss of sensitivity in mAChR systems. However, these results, when considered along with those obtained with in vitro administration indicate that in addn., PBN may have acute effects (e.g. perhaps membrane structural alterations) which can also improve mAChR responsiveness.

IT **3376-24-7**, n-tert-Butyl-.alpha.-phenylnitrone
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(nitrone **spin-trapping** compd. butylphenylnitrone reduces age-related deficits in striatal muscarinic receptor sensitivity)

CC 1-11 (Pharmacology)

IT **Oxidative stress**, biological
Senescence
(nitrone **spin-trapping** compd. butylphenylnitrone reduces age-related deficits in striatal muscarinic receptor sensitivity)

IT G proteins (guanine nucleotide-binding proteins)
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(nitrone **spin-trapping** compd. butylphenylnitrone reduces age-related deficits in striatal muscarinic receptor sensitivity)

IT Receptors
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(muscarinic, nitrone **spin-trapping** compd. butylphenylnitrone reduces age-related deficits in striatal muscarinic receptor sensitivity)

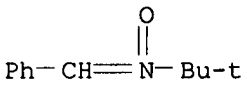
IT Brain
(striatum, nitrone **spin-trapping** compd. butylphenylnitrone reduces age-related deficits in striatal muscarinic receptor sensitivity)

IT **3376-24-7**, n-tert-Butyl-.alpha.-phenylnitrone
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(nitrone **spin-trapping** compd. butylphenylnitrone reduces age-related deficits in striatal muscarinic receptor sensitivity)

IT **3376-24-7**, n-tert-Butyl-.alpha.-phenylnitrone
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(nitrone **spin-trapping** compd. butylphenylnitrone reduces age-related deficits in striatal muscarinic receptor sensitivity)

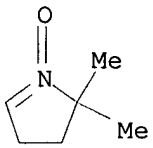
RN 3376-24-7 HCAPLUS

CN 2-Propanamine, 2-methyl-N-(phenylmethylene)-, N-oxide (9CI) (CA INDEX NAME)

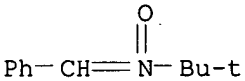


L22 ANSWER 9 OF 13 HCAPLUS COPYRIGHT 1999 ACS
AN 1995:133878 HCAPLUS
DN 122:48627
TI Susceptibility of glutathione peroxidase and glutathione reductase to **oxidative damage** and the protective effect of **spin trapping** agents
AU Tabatabaie, Tahereh; Floyd, Robert A.
CS Free Radical Biology and Aging Research Program, Oklahoma Medical Research Foundation, Oklahoma City, OK, 73104, USA
SO Arch. Biochem. Biophys. (1994), 314(1), 112-9
CODEN: ABBIA4; ISSN: 0003-9861
DT Journal
LA English
AB Susceptibility of two key protective enzymes, glutathione peroxidase (GPX) and glutathione reductase (GR), to oxidative damage and the possible protective action of spin traps have been studied. Several oxidizing protocols including: (a) Fe(II) or Fe(III)/ascorbate, (b) a singlet oxygen producing system (methylene blue and visible light), (c) ozone, and (d) a hydroxyl radical-generating system (hydrogen peroxide/UV light) have been employed. Our results show that both enzymes are susceptible to oxidative modification and damage as indicated by the loss of activity and formation of carbonyl groups (in the case of GR). Treatment of GR with any of the mentioned oxidants resulted in formation of carbonyl groups and inactivation except when treated with iron, where the obsd. carbonyl formation was not accompanied with significant activity loss. GPX was inactivated to varying degrees when treated with the mentioned oxidants, but no carbonyls were detected. UV exposure per se resulted in inactivation of both enzymes. Presence of the spin traps N-tert-butyl-.alpha.-phenylnitrone or 5,5'-dimethyl-1-pyrroline N-oxide was effective in protecting the enzymes against oxidn. by UV, hydrogen peroxide/UV, and ozone as detd. by the preservation and activity and decreased carbonyl content. The degree of protection, however, was found to be specific for each enzyme and for the employed oxidizing system.
IT **3317-61-1**, Dmpo **3376-24-7**, N-tert-Butyl-.alpha.-phenylnitrone
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(glutathione peroxidase and glutathione reductase susceptibility to **oxidative damage** and protective effect of **spin trapping** agents)
CC 4-3 (Toxicology)
ST oxidant glutathione peroxidase reductase **spin trap**
IT Carbonyl group
Oxidizing agents
(glutathione peroxidase and glutathione reductase susceptibility to **oxidative damage** and protective effect of **spin trapping** agents)
IT 3352-57-6, Hydroxyl, biological studies 10028-15-6, Ozone, biological studies
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(glutathione peroxidase and glutathione reductase susceptibility to **oxidative damage** and protective effect of

spin trapping agents)
IT 9001-48-3, Glutathione reductase 9013-66-5, Glutathione peroxidase
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(glutathione peroxidase and glutathione reductase susceptibility to **oxidative damage** and protective effect of **spin trapping** agents)
IT **3317-61-1**, Dmpo **3376-24-7**, N-tert-Butyl-.alpha.-phenylnitrone
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(glutathione peroxidase and glutathione reductase susceptibility to **oxidative damage** and protective effect of **spin trapping** agents)
IT 7782-44-7, Oxygen, biological studies
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(singlet; glutathione peroxidase and glutathione reductase susceptibility to **oxidative damage** and protective effect of **spin trapping** agents)
IT **3317-61-1**, Dmpo **3376-24-7**, N-tert-Butyl-.alpha.-phenylnitrone
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(glutathione peroxidase and glutathione reductase susceptibility to **oxidative damage** and protective effect of **spin trapping** agents)
RN 3317-61-1 HCAPLUS
CN 2H-Pyrrole, 3,4-dihydro-2,2-dimethyl-, 1-oxide (9CI) (CA INDEX NAME)

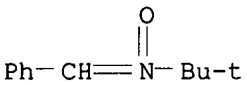


RN 3376-24-7 HCAPLUS
CN 2-Propanamine, 2-methyl-N-(phenylmethylene)-, N-oxide (9CI) (CA INDEX NAME)



L22 ANSWER 10 OF 13 HCAPLUS COPYRIGHT 1999 ACS
AN 1993:462221 HCAPLUS
DN 119:62221
TI Protection against **oxidative damage** to CNS by .alpha.-phenyl-tert-butyl nitrone and other **spin-trapping** agents: A novel series of nonlipid free radical scavengers
AU Floyd, Robert A.; Carney, John M.
CS Mol. Toxicol. Res. Program, Oklahoma Med. Res. Found., Oklahoma City, OK, 73104, USA
SO Emerging Strategies Neuroprot. (1992), 252-72. Editor(s): Marangos, Paul J.; Lal, Harbans. Publisher: Birkhaeuser, Boston, Mass.

CODEN: 59CZA9
DT Conference; General Review
LA English
AB A review with 18 refs.
IT **3376-24-7**
RL: BIOL (Biological study)
(**oxidative damage** to central nervous system prevention by)
CC 1-0 (Pharmacology)
IT Reactive oxygen species
RL: BIOL (Biological study)
(central nervous system damage by, **spin-trapping** agents inhibition of)
IT Nervous system
(central, nonlipid free radical scavengers inhibition of **oxidative damage** to)
IT **Trapping** and **Traps**
(**spin**, agents for, CNS **oxidative damage** prevention by)
IT 7782-44-7D, Oxygen, radicals
RL: BIOL (Biological study)
(central nervous system damage by, **spin-trapping** agents inhibition of)
IT **3376-24-7**
RL: BIOL (Biological study)
(**oxidative damage** to central nervous system prevention by)
IT **3376-24-7**
RL: BIOL (Biological study)
(**oxidative damage** to central nervous system prevention by)
RN 3376-24-7 HCAPLUS
CN 2-Propanamine, 2-methyl-N-(phenylmethylene)-, N-oxide (9CI) (CA INDEX NAME)



L22 ANSWER 11 OF 13 HCAPLUS COPYRIGHT 1999 ACS
AN 1993:116773 HCAPLUS
DN 118:116773
TI **spin trapping** agents for the treatment of diseases associated with oxidation of lipids and proteins
IN Carney, John M.; Floyd, Robert A.
PA Oklahoma Medical Research Foundation, USA; University of Kentucky Research Foundation
SO PCT Int. Appl., 52 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 4
PATENT NO. KIND DATE APPLICATION NO. DATE

PI	WO 9222290	A1	19921223	WO 92-US5194	19920618
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	AU 9222614	A1	19930112	AU 92-22614	19920618
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	EP 590072	A1	19940406	EP 92-914539	19920618
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	CA 2111836	AA	19921223	CA 92-2111836	19921223
	US 5622994	A	19970422	US 94-212800	19940315
PRAI	US 91-716952	19910618			
	US 89-422651	19891017			
	US 90-589177	19900927			
	WO 92-US5194	19920618			
	US 93-52870	19930426			

OS MARPAT 118:116773

AB In the preferred embodiment of the invention, compns. for treating tissue damage from ischemia contain .alpha.-Ph tert-Bu nitrone (I), or active derivs. thereof, in a suitable pharmaceutical carrier. Other preferred spin-trapping agents include 5,5-dimethylpyrroline N-oxide, .alpha.-(4-pyridyl-1-oxide)-N-tert-butylnitrone, TEMPO, and derivs. thereof. The I derivs. include halo derivs., bifunctional derivs., conjugates with drugs or targeting mols., dimers, and cyclodextran polymers of I. Many different disorders can be treated using these compds., including diseases or disorders of the central and peripheral nervous systems and disorders arising from ischemia, infection, inflammation, oxidn. from exposure to radiation or cytotoxic compds., as well as due to naturally occurring processes (e.g. aging). I inhibited oxidn. of LDL in plasma in vitro.

IT **3376-24-7**
RL: BIOL (Biological study)
(LDL **oxidn.** inhibition with, for **therapeutic**)

IT **146407-39-8 146407-40-1 146407-41-2 146407-45-6**
RL: BIOL (Biological study)
(as **spin trapping** compd., for treatment of disease assocd. with **oxidn.** of lipid or protein)

IC ICM A61K031-135
ICS A61K031-40; A61K031-44; A61K031-445

CC 1-12 (Pharmacology)
Section cross-reference(s): 8

ST **spin trap** antioxidant lipid protein; LDL **oxidn** inhibitor phenylbutylnitrone; phenylbutylnitrone **spin trap therapeutic**; nitrone phenylbutyl **spin trapping** agent

IT Receptors
RL: BIOL (Biological study)
(carbohydrates binding to cell-surface, conjugates with **spin trapping** compd., for **therapeutic** use, protein and lipid **oxidn.** inhibition in relation to)

IT Oxidation
(of lipids or proteins, disorders assocd. with, treatment of, **spin trapping** compds. for)

IT Muscle
(overexertion of, treatment of, **spin trapping**

compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT Lipids, reactions
Proteins, reactions
RL: RCT (Reactant)
(**oxidn.** of, disorders assocd. with, treatment of, **spin trapping** compds. for)

IT Antihypertensives
(**spin trapping** compds. for, for renal hypertension, lipid and protein **oxidn.** inhibition in relation to)

IT Aging
Ulcer inhibitors
Wound healing
(**spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT Nerve, disease
(traumatic, treatment of, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT **Oxidative stress**, biological
(treatment of disorders assocd. with, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT Cytotoxic agents
Radiation
(treatment of disorders due to exposure to, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT Aneurysm
Burn
Lupus erythematosus
Parkinsonism
(treatment of, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT Artery
(angioplasty, treatment of, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT **Therapeutics**
(chemo-, pulmonary fibrosis assocd. with, treatment of, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT Lung, disease
(chronic obstructive, treatment of, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT Carbohydrates and Sugars, compounds
RL: BIOL (Biological study)
(conjugates, cell-surface receptor-binding, with **spin trapping** compd., for **therapeutic** use, protein and lipid **oxidn.** inhibition in relation to)

IT Antibodies
Enzymes
Hormones
RL: BIOL (Biological study)
(conjugates, with **spin trapping** compd., for **therapeutic** use, protein and lipid **oxidn.** inhibition in relation to)

IT Skin, disease

(decubitus ulcer, treatment of, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT Organ
(disease, treatment of peripheral, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT Nervous system
(disease, treatment of, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT Nose
(disease, hemorrhage, treatment of, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT Spinal cord
(disease, injury, treatment of, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT Lung, disease
(fibrosis, chemotherapeutic-assocd., treatment of, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT Intestine, disease
(ischemia, treatment of, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT Lipoproteins
RL: RCT (Reactant)
(low-d., **oxidn.** of, treatment of disorders with, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT Headache
(migraine, treatment of, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT Pancreas, disease
(pancreatitis, treatment of, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT Nerve, disease
(peripheral, diabetic neuropathy, treatment of, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT Blood vessel, disease
(spasm, ventricular hemorrhage-assocd., treatment of, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT **Trapping** and **Traps**
(**spin**, compds. for, for **therapeutic** use, protein and lipid **oxidn.** inhibition in relation to)

IT Brain, disease
(stroke, treatment of, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT Organ
(transplant, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT Injury
(trauma, treatment of, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT Intestine, disease

(ulcerative colitis, treatment of, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

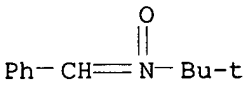
IT Headache
(vascular, treatment of, **spin trapping** compds. for, lipid and protein **oxidn.** inhibition in relation to)

IT **3376-24-7**
RL: BIOL (Biological study)
(LDL **oxidn.** inhibition with, for **therapeutic**)

IT 24423-87-8 **146407-39-8 146407-40-1 146407-41-2**
146407-42-3 146407-43-4 146407-44-5 **146407-45-6**
146407-46-7 146407-47-8
RL: BIOL (Biological study)
(as **spin trapping** compd., for treatment of disease assocd. with **oxidn.** of lipid or protein)

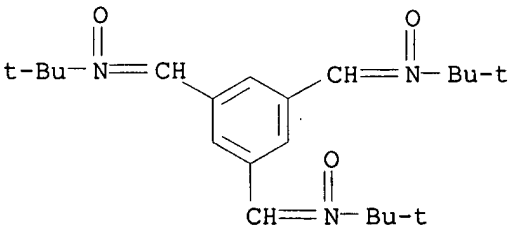
IT **3376-24-7**
RL: BIOL (Biological study)
(LDL **oxidn.** inhibition with, for **therapeutic**)

RN 3376-24-7 HCAPLUS
CN 2-Propanamine, 2-methyl-N-(phenylmethylene)-, N-oxide (9CI) (CA INDEX NAME)

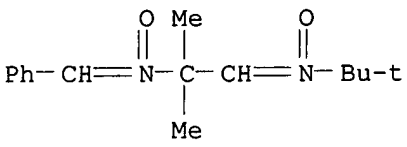


IT **146407-39-8 146407-40-1 146407-41-2**
146407-45-6
RL: BIOL (Biological study)
(as **spin trapping** compd., for treatment of disease assocd. with **oxidn.** of lipid or protein)

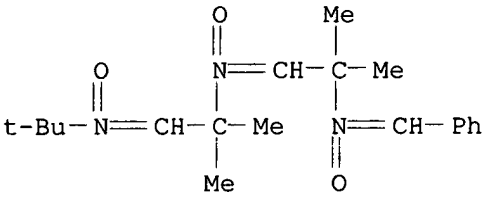
RN 146407-39-8 HCAPLUS
CN 2-Propanamine, N,N',N''-(1,3,5-benzenetriyltrimethylidyne)tris[2-methyl-, N,N',N''-trioxide (9CI) (CA INDEX NAME)



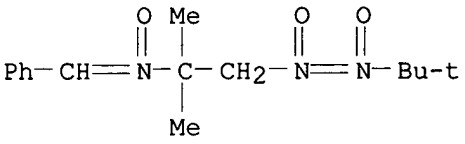
RN 146407-40-1 HCAPLUS
CN 2-Propanamine, 1-[(1,1-dimethylethyl)oxidoimino]-2-methyl-N-(phenylmethylene)-, N-oxide (9CI) (CA INDEX NAME)



RN 146407-41-2 HCAPLUS
CN 2-Propanamine, 1-[[2-[(1,1-dimethylethyl)oxidoimino]-1,1-dimethylethyl]oxidoimino]-2-methyl-N-(phenylmethylene)-, N-oxide (9CI) (CA INDEX NAME)



RN 146407-45-6 HCAPLUS
CN 2-Propanamine, 1-[(1,1-dimethylethyl)dioxidoazo]-2-methyl-N-(phenylmethylene)-, N-oxide (9CI) (CA INDEX NAME)



L22 ANSWER 12 OF 13 HCAPLUS COPYRIGHT 1999 ACS
AN 1992:231117 HCAPLUS
DN 116:231117
TI Detection of lipid radicals by electron paramagnetic resonance **spin trapping** using intact cells enriched with polyunsaturated fatty acid
AU North, James A.; Spector, Arthur A.; Buettner, Garry R.
CS Coll. Med., Univ. Iowa, Iowa City, IA, 52242, USA
SO J. Biol. Chem. (1992), 267(9), 5743-6
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English
AB EPR spin trapping was used to detect lipid-derived free radicals generated by iron-induced oxidative stress in intact cells. Using the spin trap .alpha.-(4-pyridyl 1-oxide)-N-tert-butylnitrone (POBN), carbon-centered radical adducts were detected. These lipid-derived free radicals were formed during incubation of ferrous iron with U937 cells that were enriched with docosahexaenoic acid (22:6n-3). The EPR spectra exhibited apparent hyperfine splittings characteristic of a POBN/alkyl radical, .alpha.N = 15.63 .+-. 0.06 G and .alpha.H= 2.66 .+-. 0.03 G, generated as

a result of .beta.-scission of alkoxyl radicals. Spin adduct formation depended on the FeSO4 content of the incubation medium and the no. of 22:6-enriched cells present; when the cells were enriched with oleic acid (18:1n-9), spin adducts were not detected. This is the first direct demonstration, using EPR, of a lipid-derived radical formed in intact cells in response to oxidant stress.

IT **66893-81-0**
RL: ANST (Analytical study)
(in detection of lipid radicals by EPR **spin trapping**
)

CC 9-5 (Biochemical Methods)
Section cross-reference(s): 13

ST EPR **spin trapping** lipid radical; cell polyunsatd fatty acid; iron induction **oxidative stress** cell

IT Cell
(iron-induced **oxidative stress** in, lipid-derived free radicals generation by)

IT **Oxidative stress**, biological
(iron-induced, lipid-derived free radicals from, in cells, detection of)

IT Spectrochemical analysis
(ESR, for lipid radicals, **spin trapping** in)

IT Lipids, analysis
RL: ANT (Analyte); ANST (Analytical study)
(radicals, detection of, by EPR **spin trapping**)

IT **Trapping** and **Traps**
(**spin**, in lipid radicals detection by EPR spectrometry)

IT 6217-54-5
RL: ANST (Analytical study)
(cells enriched with, lipid radicals detection by EPR **spin trapping** using)

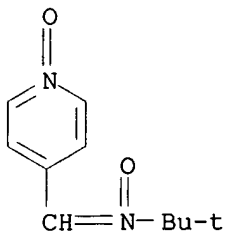
IT **66893-81-0**
RL: ANST (Analytical study)
(in detection of lipid radicals by EPR **spin trapping**
)

IT 7439-89-6, Iron, biological studies
RL: BIOL (Biological study)
(**oxidative stress** from, lipid-derived free radicals from, detection of)

IT **66893-81-0**
RL: ANST (Analytical study)
(in detection of lipid radicals by EPR **spin trapping**
)

RN 66893-81-0 HCAPLUS

CN 2-Propanamine, 2-methyl-N-[(1-oxido-4-pyridinyl)methylene]-, N-oxide (9CI)
(CA INDEX NAME)



L22 ANSWER 13 OF 13 HCAPLUS COPYRIGHT 1999 ACS
AN 1991:486840 HCAPLUS
DN 115:86840
TI Protection against **oxidative damage** to CNS by .alpha.-phenyl-tert-butyl nitrone (PBN) and other **spin-trapping** agents: a novel series of nonlipid free radical scavengers
AU Carney, John M.; Floyd, Robert A.
CS Chandler Med. Cent., Univ. Kentucky, Lexington, KY, 40536, USA
SO J. Mol. Neurosci. (1991), 3(1), 47-57
CODEN: JMNEES; ISSN: 0895-8696
DT Journal; General Review
LA English
AB A review with 18 refs. on oxygen radical toxicity to brain. The use of .alpha.-phenyl-tert-butylnitrone and other spin-trapping agents in the study of the radical toxicity is discussed.
IT **3376-24-7**
RL: BIOL (Biological study)
(in oxygen radicals toxicity to brain study)
CC 4-0 (Toxicology)
ST review oxygen radical brain **spin trapping**; phenylbutylnitrone oxygen radical brain review
IT Toxicity
(of oxygen radicals, to brain, phenylbutylnitrone and other **spin trapping** agents in study of)
IT Brain, toxic chemical and physical damage
(oxygen radicals toxicity to, phenylbutylnitrone and other **spin trapping** agents in study of)
IT **Trapping** and **Traps**
(**spin**, in oxygen radicals toxicity to brain study)
IT **3376-24-7**
RL: BIOL (Biological study)
(in oxygen radicals toxicity to brain study)
IT 7782-44-7D, Oxygen, radicals
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)
(toxicity of, to brain, phenylbutylnitrone and other **spin trapping** agents in study of)
IT **3376-24-7**
RL: BIOL (Biological study)
(in oxygen radicals toxicity to brain study)
RN 3376-24-7 HCAPLUS
CN 2-Propanamine, 2-methyl-N-(phenylmethylene)-, N-oxide (9CI) (CA INDEX NAME)